

WHAT IS CLAIMED IS:

1. An apparatus for determining rheological parameters of a sample or to produce a foam emulsion, comprising:
 - (a) a syringe assembly comprising a first syringe, a second syringe, and a capillary tube, said first and second syringe in fluid communication through said capillary tube,
 - (b) a movable assembly, said syringe assembly secured within said movable assembly, and
 - (c) a platform assembly connected to constrain said movable assembly to one axis of motion.
2. The apparatus of claim 1 where said movable assembly comprises:
 - (a) a spacer, and
 - (b) a retainer nut,
 - (c) where said syringe assembly is secured within said movable assembly by said spacer and said retainer nut.
3. The apparatus of claim 1 where said platform assembly comprises: a base plate, a lower retainer coupling, a ball plunger screw, and an adjustment means, said syringe assembly secured by said lower retainer coupling and said ball plunger screw to said base plate, and restricted in movement along said one axis of motion by said adjustment means.
4. An apparatus for determining rheological parameters of a sample or to produce a foam emulsion, comprising:
 - (a) a first syringe having a first barrel and a first plunger,
 - (b) a second syringe having a second barrel and a second plunger,
 - (c) a tube connecting said first barrel with said second barrel,
 - (d) a movable assembly, said first barrel and said second barrel removably fixed within said movable assembly, and
 - (e) a platform assembly connected to constrain movement of said movable assembly to one axis of motion, connected to said first plunger and constraining said second plunger to restrain said first

plunger and said second plunger for movement within said first barrel and said second barrel, respectively, as said first barrel and said second barrel move with said movable assembly along said one axis of motion.

5. The apparatus of claim 4 where said movable assembly further comprises a holder tube defining a first slot for removably confining said first barrel and a second slot for removably confining said second barrel.
6. The apparatus of claim 5, where said movable assembly further comprises a spacer for contacting said first barrel with said first slot and a securing assembly for urging said spacer against said first barrel.
7. The apparatus of claim 4, where said platform assembly further includes a lower retainer coupling for removably receiving said second plunger to prevent movement of said second plunger as said movable assembly moves along said one axis of motion.
8. The apparatus of claim 4 where said platform assembly further includes an adjustment means for contacting said first plunger to prevent movement of said first plunger along said one axis of motion.
9. The apparatus of claim 4 where said platform assembly further includes first and second pairs of vee blocks axially displaced within said platform assembly and contacting said movable assembly to constrain movement of said movable assembly to said one axis of motion.
10. A method for determining rheological parameters of a fluid, comprising:
 - (a) forming a syringe assembly having a first syringe with a first barrel and a first plunger, a second syringe with a second barrel and a second plunger, and a tube connecting said first barrel and said second barrel for transporting fluid therebetween,
 - (b) placing said fluid within said first barrel or said second barrel,
 - (c) securing said first barrel and said second barrel to a movable assembly,

10 (d) coupling said second plunger to a platform assembly to isolate movement of said second plunger from movement of said second barrel, and restraining said first plunger to isolate movement of said first plunger from movement of said first barrel,

15 (e) reciprocally moving said movable assembly along one axis of motion so that said first plunger and said second plunger move within said first barrel and said second barrel, respectively, to move said fluid between said first barrel and said second barrel through said tube.

11. The method of claim 10, further including: measuring the force required to move said movable assembly as a measure of rheological parameters of said fluid.

12. The method of claim 10, further including: placing first and second fluids within said syringe assembly, measuring the force required to move said movable assembly as said first and second fluids move within said syringe assembly, and reciprocating said movable assembly until said force indicates that a desired mixing condition between said first and second fluids has been obtained.

5